



## **Federal Aviation Administration**

---

# **Memorandum**

**Date:** AUG 5 2005

**From:** Manager, Flight Technologies and Procedures Division, AFS-400

**To:** Program Director, Aviation Systems Standards, AVN-1

**Prepared by:** Flight Procedure Standards Branch, AFS-420

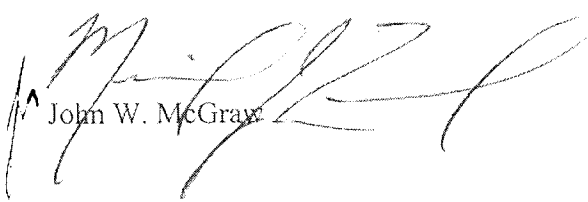
**Subject:** Interim Implementation Guidance for the Instrument Flight Procedures (IFP) Program  
and Required Navigation Performance (RNP) Instrument Procedures

---

The attached Order 8260.19C, Flight Procedures and Airspace, interim guidance is provided for your action to implement the IFP program. Additionally, we are providing additional Order 8260.19C guidance necessary to implement public RNP Special Aircraft and Aircrew Authorization Required (SAAAR) instrument procedures.

This memorandum is cancelled upon publication of Order 8260.19D.

If you have any questions, please contact Donald Pate, AFS-420, at (405) 954-4164.

  
John W. McGraw

**Attachment**

## Attachment

### FAAO 8260.19C Paragraph Changes Required For IFP and RNP Implementation

1. Paragraph 491d (Added): RNAV RNP procedures may be designed to support minimums with different RNP values in the final approach segment. The largest RNP value is the one that will be coded into the avionics database (pilots will have the ability to enter the lower values if their equipment permits).
2. Paragraph 492b: **FAA 8260-series forms must document waypoint type and waypoint description codes** for all waypoint fixes used in RNAV procedure design. Because of the different obstacle assessments conducted, FO and FB information is critical to flight crews and should be consistently displayed on aeronautical charts and in navigational databases. The waypoint type (FO/FB) is documented on Form 8260-3/5/7 as applicable (see paragraph 851a(7)). For agencies providing a complete ARINC record printout of a procedure on Form 8260-10, waypoint description codes entries are not required.
3. Paragraph 493c: **Document leg type codes on 8260-series forms** in accordance with applicable instructions in chapter 8 and Order 8260.46, Departure Procedure (DP) Program. For agencies providing a complete ARINC record printout of a procedure on Form 8260-10, these entries are not required.
4. Paragraph 497: **CRITICAL TEMPERATURE.** Temperature limits above and below which Baro-VNAV operations are not authorized are published on RNAV instrument approach procedures. TERPS criteria provide the formulas to compute the critical temperatures for the airport of intended landing based on a given deviation from ISA for the airport elevation. Standard ISA deviation values (deviation value from airport ISA) for an airport in Hawaii is ISA -20°C; for contiguous U.S. is ISA -30°C; and for Alaska is ISA -40°C. For RNAV (GPS) procedures, use: **“Chart Note: For uncompensated Baro-VNAV systems, LNAV/VNAV NA below \_\_\_\_°C (\_\_\_\_°F) or above \_\_\_\_°C (\_\_\_\_°F).”** For RNAV (RNP) procedures, use: **“Chart Note: For uncompensated Baro-VNAV systems, Procedure NA below \_\_\_\_°C (\_\_\_\_°F) or above \_\_\_\_°C (\_\_\_\_°F).”** Document the ISA deviation value used in the remarks section of the Form 8260-9.

5. Paragraph 499a: **Enter a 5 digit WAAS channel number** into the Additional Flight Data block into the 8260-series form (see paragraph 857l(4). A block of WAAS channel numbers is allocated to the National Flight Procedures Office (NFPO) by the National Flight Data Center (NFDC). This paragraph does not apply to RNAV RNP procedures.
6. Paragraph 499b: **Enter Approach ID; e.g., W09A** into the Additional Flight Data block of the 8260-series form (see paragraph 857l(4). This is the same as the Reference Path Identifier described in Appendix 11 and is part of the FAS Data Block. This paragraph does not apply to RNAV RNP procedures.
7. Paragraph 499e: **Add:** RNAV (RNP) procedures will require the use of GPS; use: **“Chart note: GPS Required.”**
8. Paragraph 499f: **Document Route Types and Route Type Qualifiers** in the Additional Flight Data block. These descriptions are in the form of an alpha character and found in ARINC Standard 424, Navigation Database, paragraph 5.7. For agencies providing a complete ARINC record printout of a procedure on Form 8260-10 these entries are not required.
9. Paragraph 499h: **Document the Waypoint Description Code** as defined in ARINC Standard 424 on the applicable Form 8260 (see paragraph 851a(7) and Appendix 12). For agencies providing a complete ARINC record printout of a procedure on Form 8260-10, these entries are not required.
10. Paragraph 499j (Added): **Document the RNP value** (e.g., RNP 0.15) used for each segment (except the final segment) in the “TO” block of the “Terminal Routes” section on Form 8260-3 (see paragraph 851a(6)). For agencies providing a complete ARINC record printout of a procedure on Form 8260-10, these entries are not required.
11. Paragraph 499k (Added): **Document the indicated airspeed value used to calculate the RF turn radius for RNP procedures** in the “TO” block of the “Terminal Routes” section on Form 8260-3 (see paragraph 851a(6)). For agencies providing a complete ARINC record printout of a procedure on Form 8260-10, these entries are not required.

**12. Paragraph 499l (Added): RNP procedures that contain RF turns** may not be usable by certain RNP capable aircraft, so the entire procedure or segment of the procedure must be annotated with a “RF Required” to alert the pilot of this limitation. If the entire procedure can only be flown by RF capable aircraft, use: “**Chart note: RF Required.**” If an RNP procedure can be flown from an IAF without RF turns in any segment (including missed approach) and there are RF turns required when initiating the approach from other IAFs on the chart, a note must be placed adjacent to the IAF(s) affected. Use: “**Chart planview note adjacent to (name) IAF: RF Required.**”

**13. Paragraph 499m (Added): Procedure development agencies may provide a** complete ARINC packet printout on a separate Form 8260-10. The packet shall include the procedure record and all supporting records, i.e. Waypoints, Airport or Heliport, Runways, MSA or TAA, Path Point, etc. The printout will include column numbers for each record type. See ARINC Record Printout examples in Appendix 2.

**14. Paragraph 851:** **TERMINAL ROUTES.** The information described in the Terminal Route section along with data entered on line 1 or 2 is used to develop the planview of the instrument approach chart. For RNAV (GPS and RNP) procedures, document all segments of the procedure, including the final segment.

**15. Paragraph 851a(6): For RNAV (GPS and RNP) IAPs, document:**

**(a) The RNAV leg type,** waypoint type (fly-by (FB) or fly-over (FO)), and waypoint description code for all approach as well as missed approach segments, in the “TO” column, as appropriate; e.g., **UNAVY (NOPT) (TF) (FB) (40E) (41E) (43A); ECCHO (DF) (FO) (40E) (42M)** (see Note 1).

**(b) The RNP value** for each segment for RNAV (RNP) designated instrument procedures in the “TO” column.

**(c) The indicated airspeed (IAS)** used to calculate the RF turn radius for RNP procedures; e.g., **(140 KIAS).**

**(d) The Landing Threshold Point (LTP) OR** for offset procedures, the Fictitious Threshold Point (FTP) in the “TO” column; e.g., RW18R for the LTP or a CNF for the FTP. Normally, the LTP/FTP will be designated as a Fly-Over waypoint; e.g., **RW36R (MAP) (TF) (FO) or GZWTY**

**(MAP) (TF) (FO).** However, when RNP is required for the missed approach course **and** the RNP necessary is less than 1.0 (See Order 8260.52, Chapter 4), the LTP/FTP shall be coded as a Fly-By waypoint; e.g., **RW18R (MAP) (TF) (FB) or FTYWZ (MAP) (TF) (FB).**

**(e) The waypoint description codes** in the “FROM” column must be listed as appropriate; e.g., **HABRA (43B); GIPNE (42S); RW32 (MAP) (40G) (43M)** (see Note 1).

**(f) The missed approach holding waypoint** (clearance limit) as a fly-over (FO) waypoint.

*NOTE 1: For agencies providing a complete ARINC packet record on Form 8260-10, RNAV leg type, and waypoint description codes are not required in the Terminal Routes blocks.*

*NOTE 2: Waypoint description codes are defined by specifying from one and up to four column number(s) and Alpha character(s) as defined in Appendix 12. There may be more than one waypoint description code associated with a fix, based on different fix usage during the procedure.*

- 16. Paragraph 851b(6) (Added):** When an RF leg makes up a segment of an RNAV (RNP) procedure, document the radius, direction (clockwise or counter-clockwise) and the CNF point used to define this arc segment followed by the arc distance in the following manner:

**(4.72 NM RADIUS CW XDYUQ) /2.68**

*NOTE: The arc radius, direction, and CNF used to make up the RF leg are shown in parenthesis will not be published on the chart. This information is provided for database use only. Only the arc distance and altitude will be published on an RF turn.*

- 17. Paragraph 852b(2):** **Where a SIAP requires** a holding pattern in-lieu-of-PT (see TERPS Volume 1, paragraph 234e), establish the direction of holding based on the inbound course as shown in figure 8-2. Enter RNAV leg type and waypoint description code, as appropriate for procedure type. For agencies providing a complete ARINC packet record on Form 8260-10, RNAV leg type and waypoint description

code entries are not required. Enter holding data in accordance with the following examples:

**Hold SE OMEGA LOM, RT, 313.09 inbound, 1600 ft. in lieu of PT (IAF).**

**Hold N FIXXR, LT, 103.28 inbound, 3000 ft. in lieu of PT (IAF) (HF) (40E) (43C).**

**18. Paragraph 852c(1)(b): RNAV procedures** - enter the course established by NFPO computation. For RNAV (RNP) procedures that contain RF turns in the final segment, place an asterisk here. An asterisk will then be placed prior to the fix names (that make up the final approach segment) in the Terminal Routes “TO” block.

**19. Paragraph 852d(1): Fix altitudes** established on ILS for LOC only use, or RNAV (GPS) for LNAV only use, should be coincident with the glide slope when possible. Where the fix altitude is not within 20 feet of the glide slope, annotate it for LOC use as follows:

**CAROL 1600\***

**\* LOC only**

**MIZZU 1260\***

**\* LNAV only**

*NOTE 1: This notation is not used when the nonprecision FAF altitude is the same as GS intercept altitude.*

*NOTE 2: Do not establish altitude restrictions at fixes located between the PFAF and RWT on vertically guided approach procedures unless they are applicable to a non-vertically guided procedure published on the same approach chart (example: ILS chart with a localizer procedure that requires publication of a stepdown fix) and the fix altitude is annotated for use on the non-vertically guided procedure only.*

**20. Paragraph 852f(1): Enter minimum GS/GP intercept altitude**, rounded to the next higher 100-foot increment. The GS/GP intercept point is considered to be the PFAF for vertically guided procedures. If more than one GS/GP intercept altitude is necessary to support ATC operations, the closest GS/GP intercept point is the PFAF and the additional intercept altitudes will be specified in a profile view note. Document

the additional glidepath intercept information in the Notes block as follows:

**Chart profile note: \*When authorized by ATC, intercept glidepath at MLISA, 5000.**

**Chart profile note: \*When authorized by ATC, intercept glidepath at NOLEN, 5000; or FNUCH, 7000.**

- 21. Paragraph 854g(3) (Added): For RNAV (RNP) Special Aircraft and Aircrew Authorization Required (SAAAR) procedures,** establish minimums for RNP 0.3. When lower RNP values are necessary to achieve the lowest possible minimums, up to 3 additional lines of minima can be established.

*NOTE 1: Only the largest RNP value will be coded into the ARINC 424 database.*

*NOTE 2: There may situations where an RNP 0.3 cannot be achieved due to Special Use Airspace/terrain constraints and only a lesser value can be published. This is permitted along with the reason this was necessary documented in the remarks section of the Form 8260-9.*

- 22. Paragraph 857l(4): For LPV and LNAV/VNAV:** Enter the Route Type(s), Route Type Qualifier(s), WAAS Channel Number, and Reference Path Identifier (Approach ID) (see paragraph 499). For LNAV/VNAV procedures only, there will not be a WAAS Channel Number and Reference Path ID. For agencies providing a complete ARINC packet record on Form 8260-10, Route Type(s), Route Type Qualifier(s), entries are not required.

**ROUTE TYPE: A, R  
ROUTE TYPE QUALIFIER 1: J  
ROUTE TYPE QUALIFIER 2: S  
WAAS CHANNEL # 43210  
REFERENCE PATH ID: W17A**

- 23. Paragraph 860c(13):** Enter a statement indicating the automated precipitous terrain evaluation has been completed: "PRECIPITOUS TERRAIN EVALUATION COMPLETED." This will be done even if adjustments are required and entered in Part A, Block 1.

- 24. Paragraph 860c(14):** Enter the statement below when it is necessary for an RNAV (RNP) procedure PFAF coordinates to be calculated using Order 8260.3 (Change 19), Volume 3, paragraph 2.9:

“PFAF coordinates are based on the formula defined in Order 8260.3 (Change 19), Volume 3, paragraph 2.9. When either procedure is reviewed or amended, revise the PFAF location to be compliant with the current formula prescribed in Order 8260.52, U.S. Standard for Required Navigation Performance (RNP) Approach Procedures with Special Aircraft and Aircrew Authorization Required (SAAAR), paragraph 3.4.”

*NOTE: This situation will occur when a RNP SAAAR procedure is being designed to overlay another vertically guided approach procedure that already exists with the same TCH, glidepath angle, intercept altitude, and a named PFAF, (i.e., LNAV/VNAV). The coordinates of the existing procedure's PFAF should be revised to be consistent with the SAAAR procedure. If this is not possible during SAAAR procedure design, the coordinates of the existing, underlying procedure PFAF may be used for SAAAR construction.*

- 25. Paragraph 873b:** **Certification.** Procedure certification is accomplished on the reverse side of the basic procedure form, i.e., 8260-3, 8260-5, etc (see paragraph 811). ALL AFFECTED PROCEDURES REVIEWED, COORDINATES OF FACILITIES, REQUIRED EFFECTIVE DATE, COORDINATED WITH, FLIGHT CHECKED BY, DEVELOPED BY, AND APPROVED BY blocks of the 8260-10 are left blank. CHANGES and REASONS blocks can be used for appropriate entries that do not fit on the basic procedure form.